DETERMINATION OF BORON IN VARIOUS TYPES OF PASTA USING ICP-OES AND UV/VIS SPECTROPHOTOMETRY

NIK NUR SYAZWANI BT NIK YAHYA

Final Year Project Report Submitted in
Partial Fulfilment of the Requirement for the
Degree of Bachelor of Science (Hons.) Applied Chemistry
in the Faculty of Applied Sciences
Universiti Teknologi MARA

MAY 2009

This Final Year Project Report entitled **"Determination of Boron in Various Types of Pasta using ICP-OES and UV/Vis Spectrophotometry"** was submitted by Nik Nur Syazwani bt Nik Yahya, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Applied Chemistry, in the Faculty of Applied Sciences,and was approved by

Puan Maryam Bt Husin
Supervisor
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Cik Sabrina Bt M. Yahya
Project Coordinator
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Dr. Yusairie Mohd
Head of Programme
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Date: 21/5/09

ACKNOWLEDGEMENTS

I would like to acknowledge and extend my heartfelt gratitude to the following persons who have made the completion of this thesis possible:

I would like to express my deep and sincere gratitude to my supervisor, Puan Maryam bt Husin. Her wide knowledge, logical way of thinking and her detailed and constructive comments and important support throughout this work have been of great value for me. Her understanding, encouraging and personal guidance have provided a good basis for the present thesis.

I warmly thank to laboratory staffs for their valuable advice and friendly help. Their extensive discussions around my work and interesting explorations in operations have been very helpful for this study.

During this work I have collaborated with many colleagues for whom I have great regard, and I wish to extend my warmest thanks to all those who have helped me with my work gave me untiring help during my difficult moments.

Lastly and most importantly, I wish to thank my family especially my parents, Nik Yahya bin Nik Omar and Rohana bt Zakaria for their loving support. They bore me, raised me, supported me, taught me and loved me. To them I dedicate this thesis.

And to God, who made all things possible.

Nik Nur Syazwani bt Nik Yahya

TABLE OF CONTENTS

ABSTRACT

DETERMINATION OF BORON IN VARIOUS TYPES OF PASTA USING ICP-OES AND UV/VIS SPECTROPHOTOMETRY

This study analyzed boron content in commonly pasta such as spaghetti and macaroni. Boron content was analyzed based on 6 different brands of spaghetti and macaroni. This was done by using two different instruments and methods which is Inductively Coupled Plasma Optical Emission Spectroscopy and UV Visible Spectrophotometry. In spaghetti samples, the highest amount of boron concentration was obtained in brand B which is 0.034±0.005 ppm by ICP-OES and 11.90±0.68 ppm by UV/Vis. For macaroni samples, brand A contains the highest amount of boron concentration which is 0.028±0.005 ppm measured by ICP-OES and 11.44±0.10 ppm by UV/Vis. From the results obtained by these two instrument, boron concentration measured by ICP-OES is much lower than UV/Vis. This is because ICP-OES is not sensitive enough to detect boron in low concentration and their accuracy is less compared to UV/Vis. Thus, the best method for determining boron is by using azomethine-H which use UV/Vis.